

### **AMENDMENTS TO THE CLAIMS**

Please amend the claims as follows:

#### **Listing of Claims:**

Claim 1 (Currently Amended): A method for detecting at least one parameter representative of molecular probes fixed to active zones of a sensor, wherein said sensor includes a network of field-effect transistors, each of which has a source region, a drain region, and a gate region which forms one of said active zones on which said representative parameter is detected, the method comprising the following steps:

a) bringing some of said active zones into contact with molecular probes in order to fix said probes;

b) bathing at least said some of active zones which have been brought into contact with said molecular probes, in ~~said an~~ electrolyte solution; ~~and~~

c) measuring at least one point of at least one of a drain current, source-gate voltage, and source-drain voltage characteristic of at least two of the field-effect transistors having at least two active zones that are part of said some of active zones, corresponding to a first group of corresponding to at least an active zone brought into contact with said molecular probes, so as to deduce therefrom at least one said representative parameter by comparison between at least two measurements obtained for two different active zones immersed in said electrolyte solution; and

fixing a potential of the electrolyte solution which covers said active zones with an electrode that operates as a common gate electrode for the field effect transistors, the electrode immersed in said electrolyte solution.

Claim 2 (Previously Presented): The method as claimed in claim 1, wherein said measuring of said at least one point comprises:

applying a given voltage between the drain region and the source region of at least said transistors of the first group and also the application, in a first case, of a given voltage between the gate region and the source region of these transistors of the first group or, in a second case, of a given drain current to the transistors of the first group.

Claim 3 (Previously Presented): The method as claimed in either of the preceding claims, further comprising: a rinsing step between a) and b).

Claim 4 (Previously Presented): The method as claimed in claim 1, further comprising, after a) and before b), the following steps:

- a1) rinsing,
- a2) adding a solution containing target molecules capable of interacting specifically with the molecular probes.

Claim 5 (Previously Presented): The method as claimed in claim 1, further comprising, after step c), the following steps:

- d) adding an electrolyte solution containing target molecules capable of interacting specifically with the molecular probes;
- e) measuring at least one point of a drain current, source-gate voltage, and source-drain voltage characteristic of at least two transistors of a second group corresponding to said active zones brought into contact with said molecular probes and with said target molecules, so as to obtain by comparison at least one said representative parameter.

Claim 6 (Previously Presented): The method as claimed in claim 5, wherein, in step e), the measurement of at least one point of the characteristic comprises:

applying a given voltage between the drain region and the source region of said two transistors of the second group, and applying, in a first case, a given voltage between the gate region and the source region of the transistors of the second group or, in a second case, of a given drain current to the transistors of the second group.

Claim 7 (Previously Presented): The method as claimed in claim 5, comprising: using a plurality of said measurements of at least one point of the characteristic, which are spaced out over time.

Claim 8 (Previously Presented): The method as claimed in claim 1, wherein said comparison is carried out by differential measurement.

Claim 9 (Previously Presented): The method as claimed in claim 1, wherein the comparison is carried out between measurements carried out on at least two transistors corresponding to said active zones which are bathed in said electrolyte solution after having been brought into contact with said molecular probes.

Claim 10 (Previously Presented): The method as claimed in claim 1, wherein the comparison is carried out between measurements carried out on at least one transistor corresponding to a first active zone which is bathed in said electrolyte solution after having been brought into contact with said molecular probes for the purpose of fixing the molecular probes, and on at least one transistor corresponding to a second active zone which is bathed in said electrolyte solution without having been brought into contact with said molecular probes.

Claim 11 (Previously Presented): The method as claimed in claim 1, wherein said representative parameter is a detection of the fixing of the molecular probes to said one of said active zones.

Claim 12 (Previously Presented): The method as claimed in claim 1, wherein the molecular probes are DNA, RNA or protein molecules.

Claim 13 (Previously Presented): The method as claimed in claim 12, wherein the molecular probes are DNA molecules and the field-effect transistors are of depleted n-channel type, with a negative gate bias.

Claim 14 (Currently Amended): The method as claimed in claim 12, comprising:  
using detection by comparison between two zones, each zone comprising at least one field-effect transistor, the first zone being bathed in a solution obtained from a first enzymological reaction in the first zone giving a detectable product specific for the presence or the absence of a mutation in a first DNA sample, and the second zone being bathed in a solution obtained from a second enzymological reaction in the second zone giving a DNA product specific for the presence or for the absence of a mutation in a second DNA sample.

Claim 15 (Previously Presented): The method as claimed in claim 14, wherein the first and the second DNA samples originate from two patients and the first and second enzymological reactions are the same for the two samples.

Claim 16 (Previously Presented): The method as claimed in claim 14, wherein the first and the second DNA samples are identical and originate from the same patient, and the

first enzymological reaction in the first zone is carried out under experimental conditions producing a DNA product in the absence of mutation in the first sample, and the second enzymological reaction in the second zone is carried out under experimental conditions producing a DNA product in the presence of a mutation in the second sample.

Claim 17 (Currently Amended): The method as claimed in claim 1, comprising:  
circulating a solution through at least one microfluid channel, so as to bring said solution into contact with at least one field-effect ~~transistor~~transistor.

Claim 18 (Cancelled).